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**(54) Process for making patterns on clothing articles**

(57) The invention relates to a method for making localized or non localized folds, curls, patterns, etc. having a casual shape on ready-to-wear clothing articles. For this purpose, according to the invention curling means are applied along the garment seams and the so curled garment is subjected to treatments such as fading, dyeing, sand blasting, scratching, brushing, "stone-washing", etc., acting only or mainly on the exposed fabric areas and to a less extent or to no extent at all on the inward curl areas, to determine the desired final effect.

The curl, obtained by means of any suitable material, e.g. strings, threads, elastic bands, clips or the like being applied on the seams, can be made on the whole garment or just a part thereof (for instance in the case of trousers a "wear" or light-and-shade effect can be achieved by making folds or the like, for example only in the knee area).

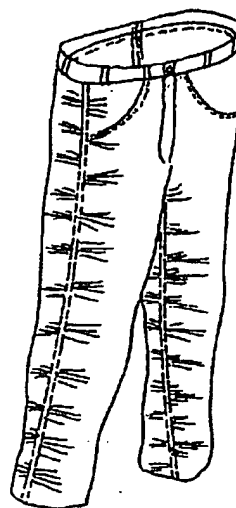


Fig. 5

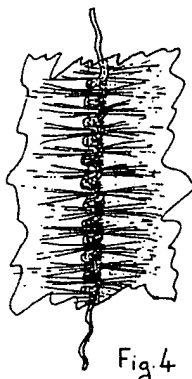


Fig. 4

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## Description

[0001] The invention relates to a method for making localized or non localized folds, curls, patterns, etc. having a casual shape on ready-to-wear clothing articles.

[0002] For this purpose, according to the invention curling means are applied along the garment seams and the so curled garment is subjected to treatments such as fading, dyeing, sand blasting, scratching, brushing, "stone-washing", etc., acting only or mainly on the exposed fabric areas and to a less extent or to no extent at all on the inward curl areas, to determine the desired final effect.

[0003] The curl, obtained by means of any suitable material, e.g. strings, threads, elastic bands, clips or the like being applied on the seams, can be made on the whole garment or just a part thereof (for instance in the case of trousers a "wear" or light-and-shade effect can be achieved by making folds or the like, for example only in the knee area).

[0004] Thus, depending on the treatment used after the fabric curling process and, possibly, by combining a plurality of treatments, infinite different effects can be obtained on the garment fabric, such as decolorizing, fading, lights and shades, wear, fabric creasing due to folds and curls.

[0005] As known, the garments are dyed or processed otherwise, for example to remove partly the surface colour and enhance the fabric fibre etc.

[0006] For this purpose several techniques are provided, for example techniques using enzyme baths which attack the fibre and therefore remove the colour, or fading chemical baths, or techniques utilizing mechanical means, such as the so-called "stone washing" technique or brushing, scratching or sand-blasting, performed by various known methods.

[0007] The firms operating in the field are always searching new solutions, and the present invention falls within this scope by providing a method which permits to obtain on ready-to-wear clothing articles shades and casually shaped marks changing from one garment to another.

[0008] For this purpose, according to the invention, in some cases suitable means such as a ribbon, a string or the like is slidably applied on the garment, preferably on the seams; by tightening said ribbon, string etc. the garment curls so that a portion of the fabric surface is exposed outwards and, therefore, it is more subject to the action of subsequent treatments, such as those previously mentioned, whereas other fabric portions inside the folds are affected by the treatments to a less extent or they are not even processed.

[0009] Thus, as described below, marks with the most different configurations can be provided.

[0010] Preferred embodiments of the invention will now be illustrated in detail, by way of non restrictive example, with reference to the accompanying drawings in which:

- figure 1 shows a garment before being processed by the method of the invention;
- figure 2 shows a detail of a garment during the initial stage of the method of the invention;
- figures 3a-3c show different ways for curling the fabric during a following stage of the process;
- figure 4 schematically shows a garment during the fabric curling stage by means of bands or the like;
- figure 5 schematically shows the garment at the end of the process,
- figures 6-10 show the different ways for applying one of the means for curling the fabric for the process;
- figure 11 shows the fabric of figure 6 just before curling;
- figure 12 schematically shows a garment at the end of a localized treatment;
- figures 13, 14 and 15 schematically show the results of possible applications of the method to a jersey and a skirt, respectively;
- figures 16-21 show further possible means for curling the fabric for processing a garment;
- figures 22-28 are photographs of a pair of jeans processed with the method of the invention showing the results which can be obtained after the known processes.

[0011] According to the method of the invention, flexible means such as threads or a ribbon, string, band, rubber band or the like are applied to the garment, preferably on the seams. By tightening said ribbon, string etc. the fabric curls, after which the garment is subjected to a subsequent process changing the garment surface colour, so much more as more exposed the fabric is.

[0012] The method is schematically illustrated in figures 1-4.

[0013] A flexible means such as a ribbon or a string 3 or the like, or even a rubber band, is applied onto the seams 2 of a garment, such as, for example, a pair of trousers 1.

[0014] The ribbon (figs. 3a-3c) is slidably applied to the garment, as will be illustrated in more detail below, so that the garment, by sliding on the ribbon 3 or the like, can be curled, thus assuming the illustrated configuration.

[0015] In figure 3a the fabric has curled because, by tightening the band, the fabric has been held as if in a vice, thus making curls.

[0016] The ends of the band of figure 3a have been tied together, but tying is not restrictive, since locking knots could be made at the band ends (fig. 3b) or one end might be stitched or fastened by a suitable means and a knot might be tied at the other end (fig 3c).

[0017] Figure 4 shows the configuration of the fabric at the beginning of the curling phase, when a band fastened in several places is used.

[0018] The garment is then subjected to a treatment

which changes the garment surface colour.

[0019] These treatments are already known and they can comprise, for example, sand-blasting, brushing, scratching, cleaning treatments with chemicals, enzymes, abrasives, dyeing treatments with dyes and chemicals, manual processing with bags, spraying dyes and/or fading products, and other processes, all of which change the fabric colour (and the fibre structure) in the contact areas, more or less evidently depending on the processing time, the contact extent, etc.

[0020] The exposed fabric areas are then subjected to decolorizing and/or wear, whereas the less exposed fabric areas, for example the inward fold areas or the contact areas of two fabric surfaces, are not affected by the treatment or are much less affected by it.

[0021] In other cases the same result can be achieved without using flexible materials, but just by folding the fabric along the seams and then stapling, sewing or fastening it by suitable means.

[0022] At the end, the garment looks for example like in figure 5, with a plurality of marks due to decolorizing which extend from the curled areas.

[0023] Thus, it is possible to make for example faded stripes extending from the trousers seams, thus providing a "wear" effect.

[0024] Obviously, by changing the kind of treatment, the garment curled areas and the curl extent, infinite combinations of different patterns can be obtained.

[0025] The effects which can be achieved are illustrated by way of example in the photographs of figures 22-28.

[0026] In particular figure 25 shows the effect which is obtained by curling the fabric on the seams.

[0027] As already stated, the methods for curling the garment can be different and some of them are illustrated in figures 6-11.

[0028] With reference to figure 6, numerals 4 and 5 respectively show the seam edges in a garment 6.

[0029] Means for inserting flexible elements such as a string, a ribbon and/or a band 7 or the like are applied to the seam edges, said means comprising clips, rings or the like and, as shown in the figure, fastening means 8.

[0030] The fastening means 8 are preferably applied on the seam inward edges, to prevent the fabric surface from being pierced.

[0031] The seam edges can also be pierced to let a band or the like pass therethrough, by tightening which the fabric is fastened and curled.

[0032] Thus it is not necessary to apply external elements which then should be removed and, in the case of a band, said band can simply be cut and drawn out.

[0033] When the ribbon or band 7 has been inserted, it can be tightened and tied in various ways by folding it on one side or the other (i.e. towards the inside or the outside of the garment, as shown by the dotted lines L1 and L2 of figure 11) to curl the fabric.

[0034] Depending on the desired result the ribbon 7 can be applied along the whole height of the garment or

just on some parts thereof, thus obtaining the desired effect only in some areas, for example in the knee area and in the pockets, as schematically shown in figure 12.

[0035] The same solution can be effectively applied also to other clothing articles, such as, for example, jerseys, as schematically shown in figure 13, or skirts, as schematically shown in figures 14 and 15, and to other garments such as jackets, shorts, sweaters, overalls, etc.

[0036] In particular figure 14 shows the results obtained by curling a skirt along its two side seams, whereas figure 15 schematically shows the result obtained by curling said skirt not only along the seams, but also along other lines therebetween (not necessarily along a seam length).

[0037] In other cases, a plurality of bands, rings or loops, through which the sliding means is inserted, can be incorporated in the seams or applied along the garment seams by sewing, stapling or stitching with conventional thread or with a special kind of thread which melts at a certain temperature.

[0038] Said bands, rings or loops can be joined and fastened together to make folds.

[0039] Another example of fastening to make stripes without using flexible means to fold and curl the fabric is to staple and/or sew two or more fabric portions, thus making the fold or curl.

[0040] Figures 18-21 respectively show a method for curling a garment by means of a rubber band stitched with conventional thread (figs. 18-19), with thermic thread (fig. 20) or with fastening means or the like (fig. 21).

[0041] The stretched rubber band is fastened or sewn on the garment, and when it is loosened it shrinks, thus curling the fabric.

[0042] Subsequently the rubber band is removed, during or after the above mentioned processes, for example by manually removing the seaming thread or by melting it during the treatments, in the case of thread which melts when the temperature rises.

[0043] According to a preferred embodiment of the invention, the curled and shrunk garment can be sand-blasted with various abrasives, brushed and scratched, dyed, etc. to wear the curls and folds unevenly.

[0044] The brushing and scratching means process the garments curled and folded according to the invention, and worn by means of brushes which brush and/or scratch on the fabric folds and curls or on other fabric portions having no particular rising areas.

[0045] With sand-blasting by various abrasives, instead of the brushing means pipes are used which shoot granulated and/or powdered abrasives at a certain pressure onto the garment.

[0046] Anyway, the curled garments could also be brushed, scratched and sand-blasted placing and holding them on a flat surface.

[0047] Another method for making stripes is as fol-

lows:

[0048] The garment shrunk with the method of the invention is visibly marked and creased on the curls, after which, when the string, or strings, has been cut or the clasping means which kept the garment shrunk are removed, the garment is inserted onto an inflatable support or the like to adhere to said support, showing however rising uneven folding marks.

[0049] At this point, by brushing and/or scratching and/or sand-blasting, due to the folds and curls of the garment on the dummy wear signs are shown up due to more or less marked stripes.

#### WATER WASHING

[0050] The shrunk garment can be treated with a plurality of products to provide different patterns, for example if it is treated with enzymes, abrasives, pumice, clay, etc., chemicals and/or fabric fading products, combining, if necessary, one or more of these treatments to obtain special effects.

[0051] The shrunk garments are processed in a washing machine with water and these chemicals, adding, if necessary, an abrasive such as granulated or pelleted pumice.

[0052] The folds and curls are worn with any kind of pellets or abrasive granules, thus forming parts which fade and other parts which keep dark because the abrasive cannot effectively pass through the folds.

[0053] If baths with a basis of fading chemicals (such as for example sodium hypochlorite) are used, on the spots where the fabric is tightened by the bands the fabric remains darker because the product cannot pass therethrough, whereas other parts fade to a greater extent.

[0054] Therefore it is possible to obtain effects of:

- creasing due to the tight hold of the bands;
- light-and-shade stripes due to stone washing (with abrasives, enzymes and/or in conjunction with other chemicals);
- lights and shades due to fading products and chemicals;
- stripes, light-and-shade creasing and wear due to the combination of all chemical physical products.

[0055] The garments can be washed:

- shrunk before being washed;
- shrunk from dyeing;
- shrunk from dyeing, unshrinking them before washing;
- shrunk from sandblasting-scratching-brushing;
- shrunk and unshrunk, from processes of spraying fading means or dyes or coating means etc.;
- shrunk or unshrunk, from brushing fading means or dyes or coating means etc.;
- shrunk in holed bags or with a garment portion

being placed in a bag closed by a string (the brushing phases can be carried out with the shrunk garment).

#### 5 DRY PROCESSES

[0056] The shrunk garments can be treated in rotating drums or washing machine cylinders with dry abrasives, forming, due to wear, portions with a lighter and darker tone or colour (the garments must be rinsed and processed in a water bath).

#### DYEING

15 [0057] The curled and shrunk garments can be subjected to colouring or dyeing processes in a washing machine or in dyeing vats.

[0058] The curled and shrunk garments can come from the stone washing process or from treatments with fading and non fading chemicals and then they can be finished.

[0059] In this case the dye dyes differently the striped and/or curled fabric portions and other fabric portions giving differentiated chromatic effects.

25 [0060] The garments can be dyed:

- shrunk, before dyeing;
- shrunk from washing;
- coming from washing, but uncurling them before dyeing;
- shrunk or coming from sand-blasting, scratching and/or brushing processes;
- shrunk from dry cleaning and uncurling them, if necessary, before dyeing;
- 35 - shrunk in holed bags; in this case the dye and other products pass through the little holes and act on the garment fabric;
- shrunk with intact bags being applied only on a garment portion.

[0061] On the shrunk garments it is possible to spray fading means and other dyes or products which colour the garment more or less when dyeing the garment by means of a spray gun. On the wrapped garments it is possible to apply, by means of brushes, fading chemicals, dyes and products which colour the garment more or less upon dyeing.

[0062] The present invention has been described and illustrated by way of non restrictive example, according to preferred embodiments thereof, but those skilled in the art can provide variations and/or modifications of flexible and/or fixed means, all of which fall within the scope of the present invention, as defined in the appended claims.

#### Claims

1. A process for making folds, curls, stripes, creasing,

etc. having a casual shape and being localized on fabrics and/or clothing articles, characterized in that it comprises the following steps:

or more processes for wearing, fading, colouring by means of chemical physical products.

- fabric or garment curling and/or shrinking; 5
- subsequent treatment of the garment by means of techniques which change the surface colour of the more or less exposed areas due to curling. 10
- 2. A process according to claim 1, characterized in that the garment is shrunk at least along a seam length. 15
- 3. A process according to claim 1 or 2, characterized in that means are applied onto the garment through which flexible means such as a string, ribbon, band or the like are slidingly inserted, by tightening which the garment is shrunk. 20
- 4. A method according to claim 3, wherein said means comprise rings, buckles, loops, bands or the like. 25
- 5. A method according to claim 2, wherein said strings, bands, rubber bands or similar flexible means are inserted through holes along the fabric seams. 30
- 6. A method according to claim 4, wherein loops, bands or the like are stitched on fabric portions by means of conventional thread or thread which melts when it is hot treated. 35
- 7. A process according to claim 1 or 2, characterized in that the garment is provided with means which anchor and/or stitch firmly, at least on a fabric length, stretched rubber bands which, on shrinking, curl and/or wrap the fabric and which are subsequently removed and/or melted during the known treatments. 40
- 8. A process according to the preceding claim, characterized in that also the means which anchor and/or permit the flexible means to slide are made, like the sliding and/or anchored element, of materials which melt at certain temperatures during the processes, due to the action of hot water, steam, warm air, etc. 45
- 9. A process according to claim 1 and/or 2, characterized in that the garment is provided with fastening means, such as clips or the like or conventional thread or thermic thread, which tighten at least a fabric portion adjacent to garment seams, thus making folds and curls. 50
- 10. A method according to any preceding claim, characterized in that said process is combined with one 55

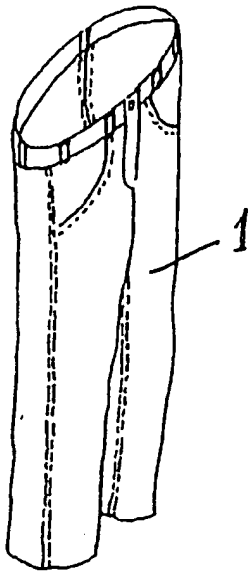


Fig. 1

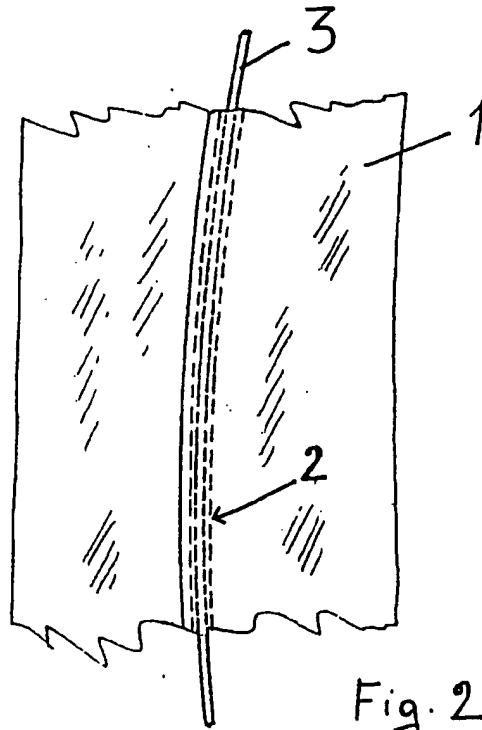


Fig. 2

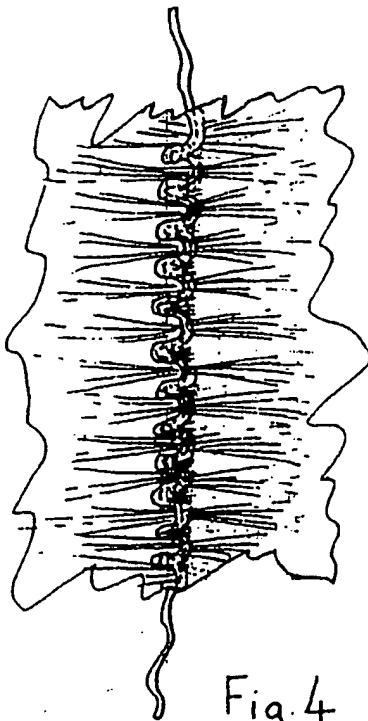


Fig. 4

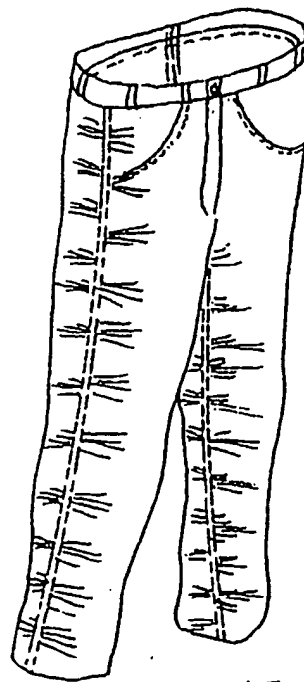


Fig. 5

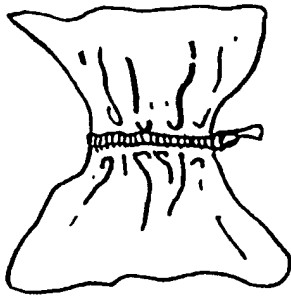


Fig. 3c

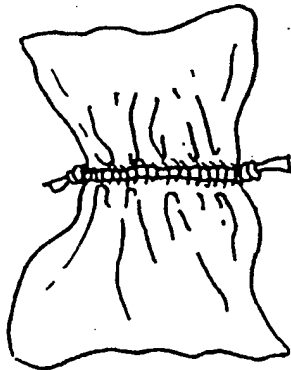


Fig. 3b

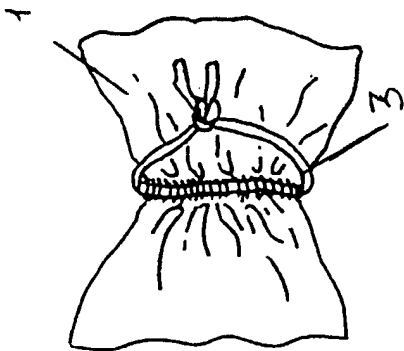


Fig. 3a

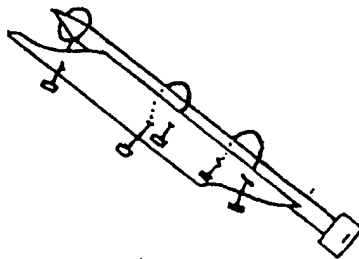


Fig. 9

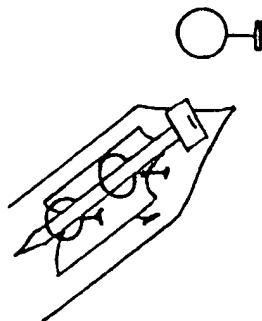


Fig. 10



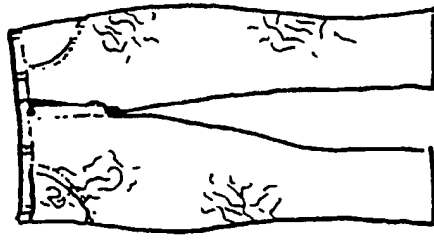


Fig. 12

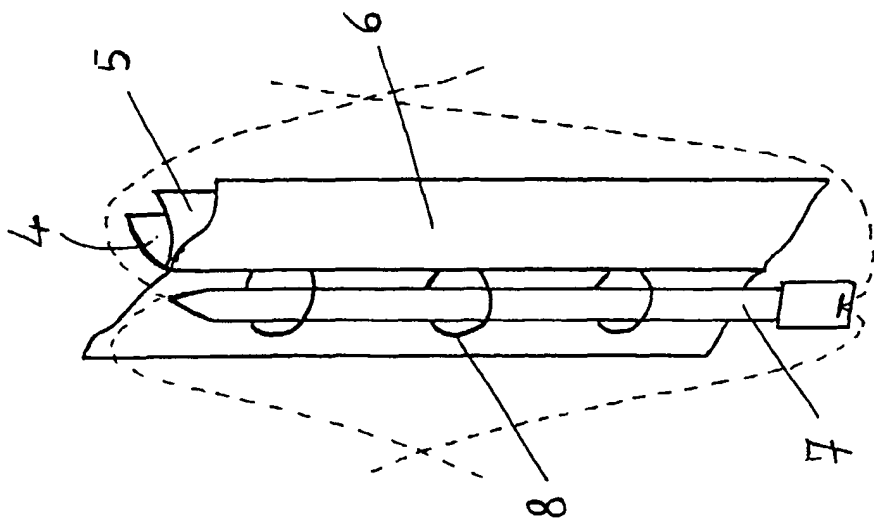


Fig. 8

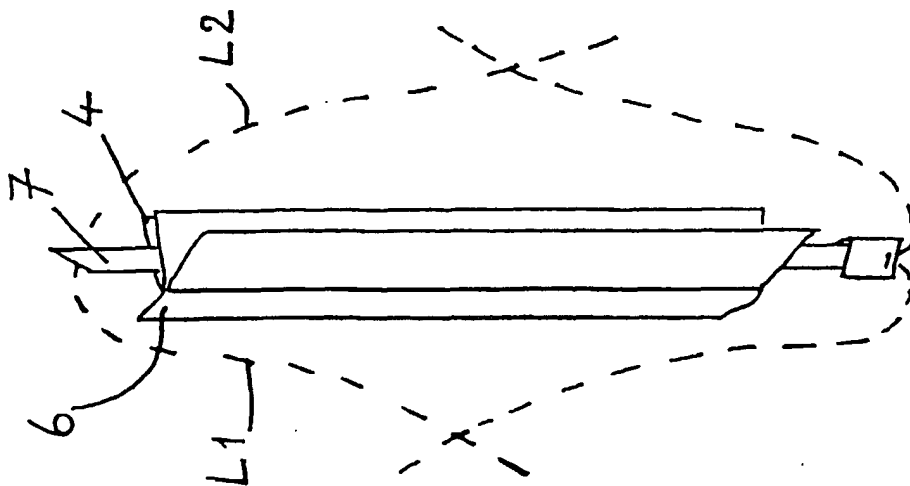


Fig. 11

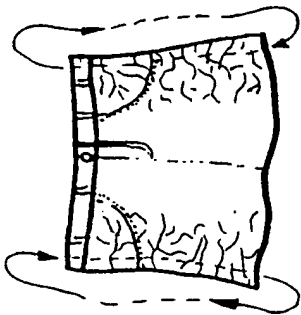


Fig. 14

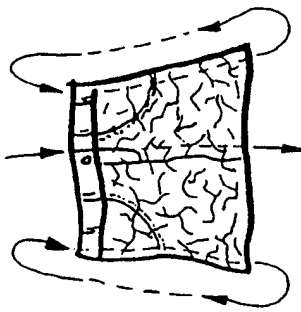


Fig. 15

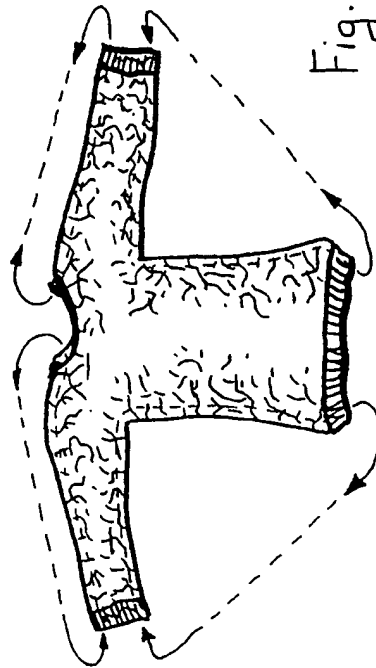


Fig. 13

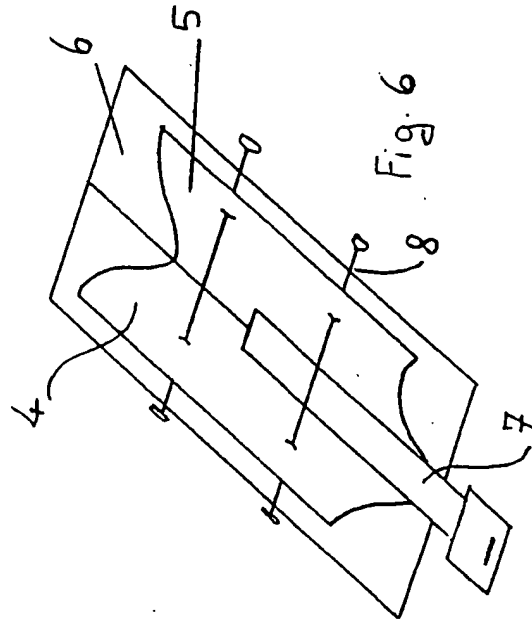


Fig. 6

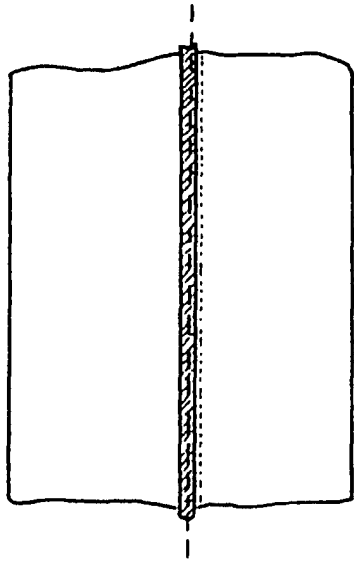


Fig. 18

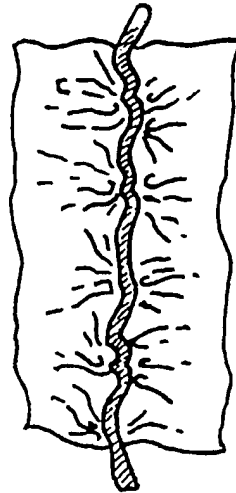


Fig. 19

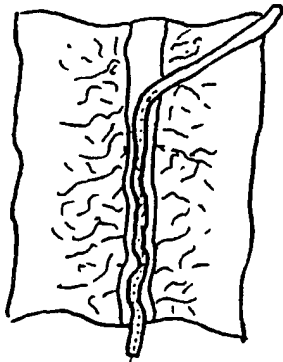


Fig. 20

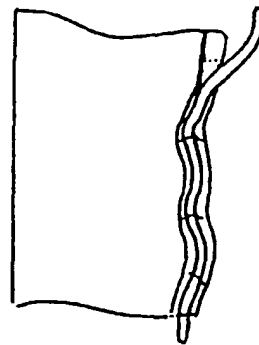


Fig. 21

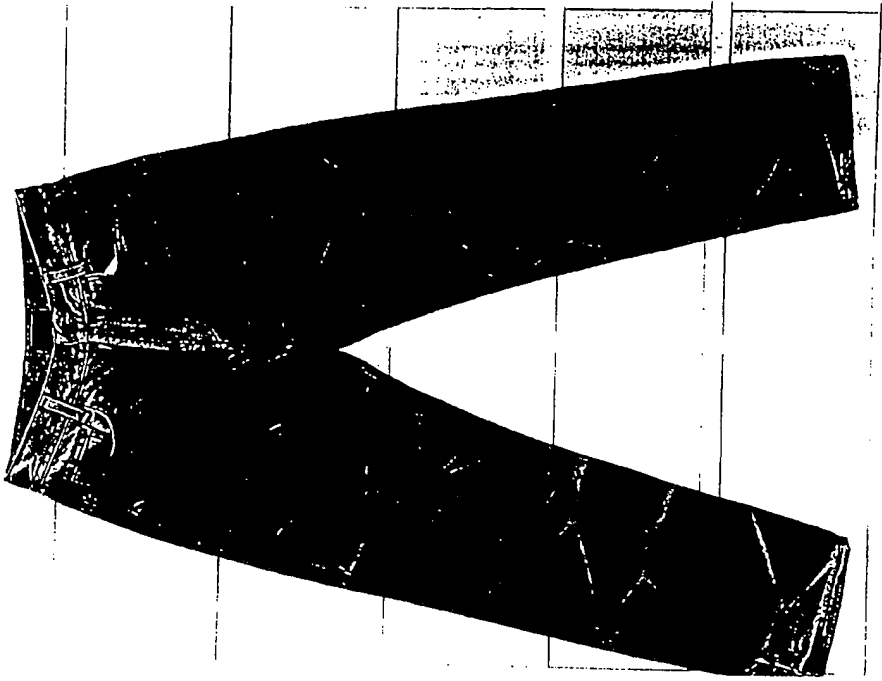


FIG. 22

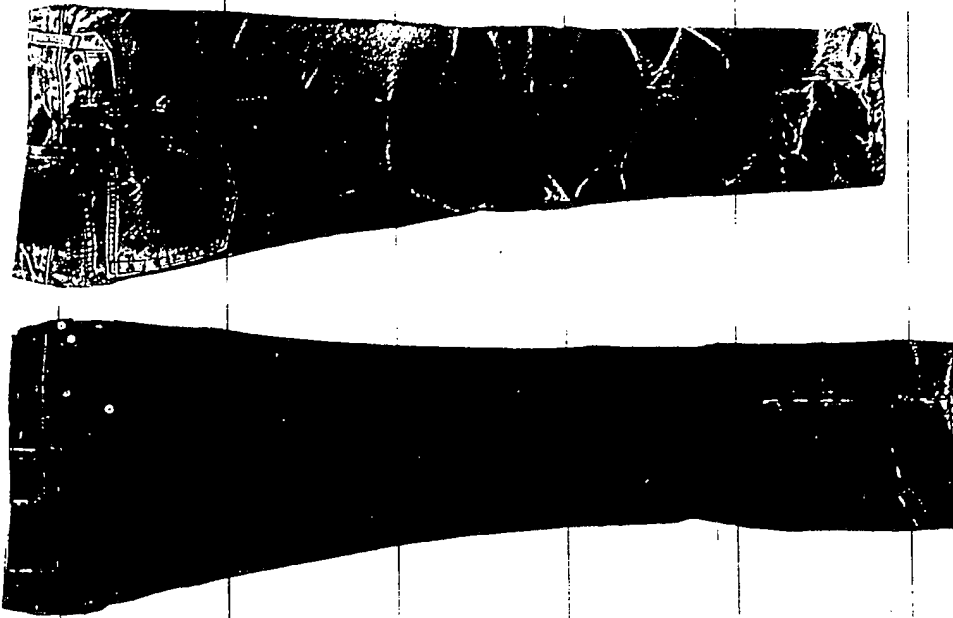


FIG. 23

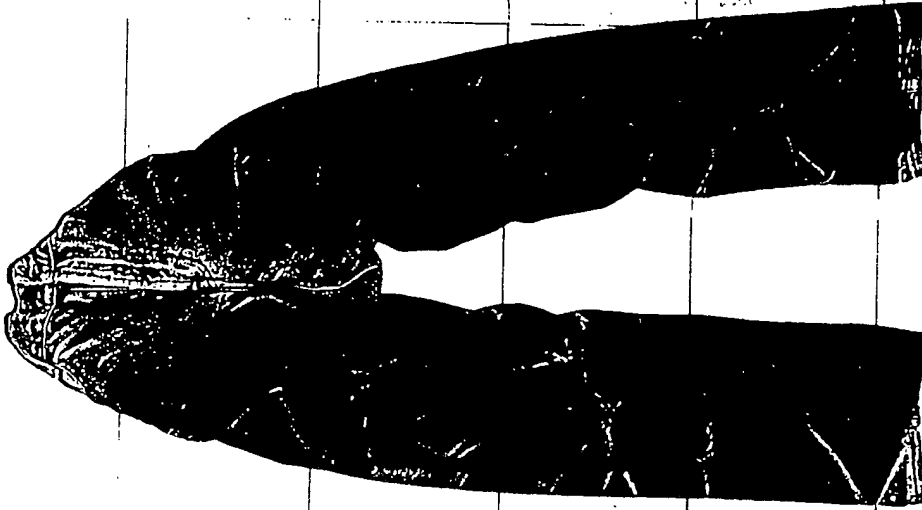


FIG. 24

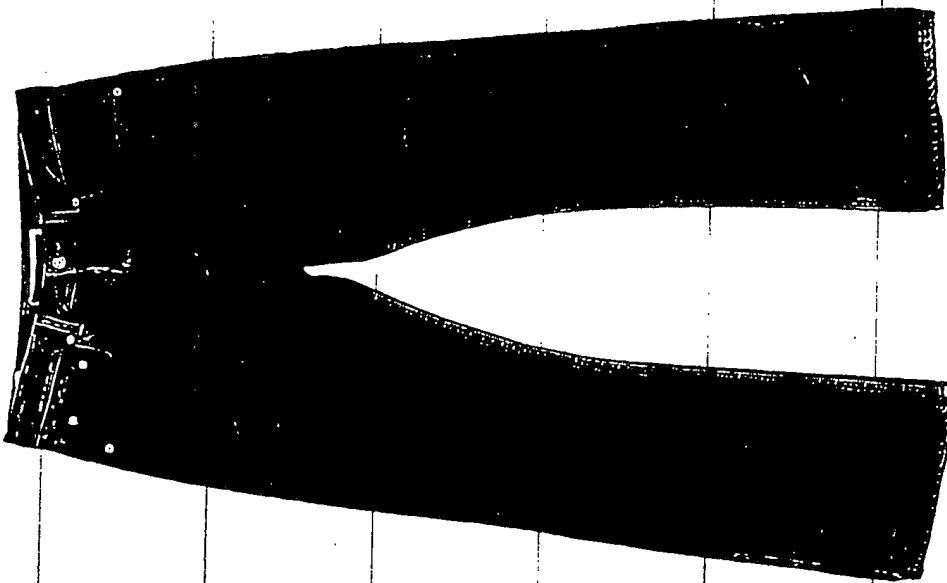


FIG. 25



FIG. 27

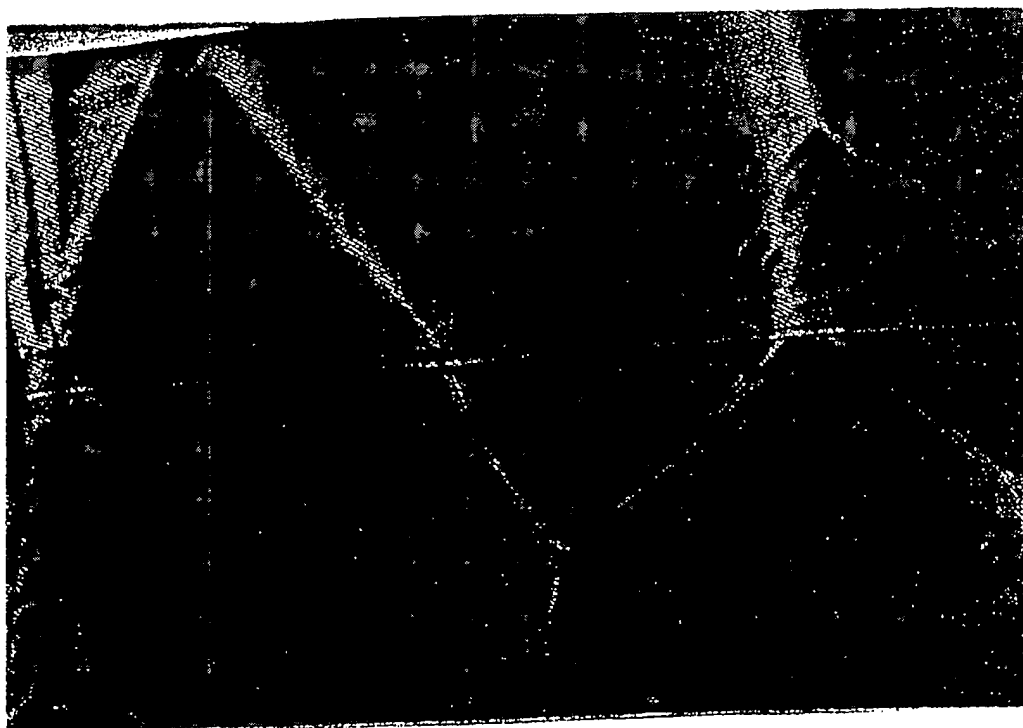


FIG. 26

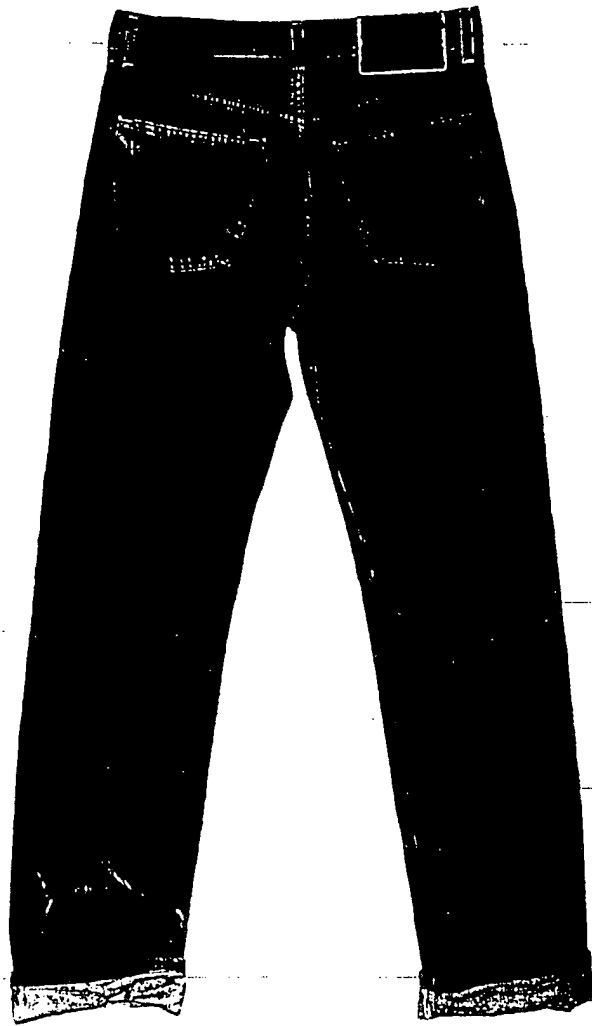


FIG. 28